

Driving Force in Metastable Solvent Epitaxy

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For the stable epitaxial growth from liquid, the constitutional undercooling is the main reason for the instability of the interface which brings the polycrystalline easily appearing. The constitutional undercooling is induced by the difference between the temperature gradient and the concentration gradient, or the difference between the solidification rate and the cooling rate. Thus if the temperature gradient doesn't exist in the system, the chance of the perturbation of interface is very suppressed. But if there is no temperature gradient, the driving force of the interface movement or crystal growth is hardly obtained. The other alternative for the driving force should be concentration gradient. But how we can get it?

Metastable solvent epitaxy is one of such an idea realizing. The configuration should be similar with the usual traveling solvent method. The driving force, concentration profiles, and atomistic level kinetic simulation of the interface will be given at the conference.